

## Infection Associated with Intravenous Catheters

To the Editor:

Septic thrombophlebitis is a well-recognized complication of the use of intravenous catheters. Recently we used phage typing to assist in locating the source of two such infections caused by *Staphylococci*.

### CASE 1

An 82-year-old white woman was admitted to the emergency ward of the Vancouver General Hospital with a fractured hip. Prior to operation, an eight-inch polyethylene catheter was inserted into a vein in her left arm. The catheter remained in place for 57 hours and was then removed because of phlebitis. Twenty-four hours after its removal the patient became febrile. The redness and swelling in her left arm increased and a pustule formed at the site where the catheter had passed through the skin. A blood culture was taken and intravenous penicillin G therapy was started. The patient failed to respond, and died five days after the insertion of the catheter and three days after its removal. The blood culture subsequently grew a coagulase-positive *Staphylococcus aureus* which was resistant to penicillin G.

Autopsy revealed a septic thrombophlebitis of the veins of the left arm, extending from the antecubital fossa to the thorax. Multiple small abscesses from septic emboli were present in both lungs. Postmortem cultures of the thrombus, spleen and lungs all grew pure cultures of coagulase-positive *Staphylococcus aureus*.

Nose and hand cultures were taken from all the personnel who had assisted in the care of the patient, and all isolates of *Staphylococcus aureus* were phage-typed. Phage typing revealed that the strains isolated from the patient, both ante mortem and post mortem, belonged to Group I and had identical patterns. The only other isolate with an identical phage pattern was recovered from the hands and nose of the physician who had inserted the catheter.

### CASE 2

A 78-year-old white man was brought to the emergency department with a history of hematemesis. An eight-inch polyethylene catheter was inserted into a vein in his left arm. Five hours later a central venous pressure catheter was inserted into a vein in his right arm. The veins of the right arm appeared normal when the latter catheter was removed 40 hours after insertion. The catheter remained in the left arm for 60 hours. Twelve hours before its removal the patient became febrile and signs of phlebitis gradually appeared in the left arm. A blood culture was obtained and the patient was treated with ampicillin. When the blood culture grew coagulase-positive *Staphylococcus aureus* resistant to penicillin G, the antibiotic therapy was changed to methicillin and a good response was noted.

Phage typing of the *Staphylococcus aureus* isolated from the blood culture revealed that it belonged to Group III. Investigation of the hospital staff involved in the care of the patient disclosed that only the nose and hand cultures of the physician who had inserted the catheter grew *Staphylococcus aureus* with an identical phage pattern. This was a different physician from that in Case 1.

### COMMENT

These case histories illustrate septic thrombophlebitis complicating the use of polyethylene intravenous catheters. In both instances *Staphylococcus aureus* was the etiologic agent, and strains showing identical phage patterns could be recovered only from the hands and noses of the physicians who originally inserted the catheters. In inserting the catheters the usual precautions had been taken and the technique followed was that usually employed in doing a venipuncture. This included hand washing and the application of 70% alcohol to the puncture site, but not the use of gloves or masks. Since the investigation of these two cases we now view the insertion of an intravenous catheter as a minor surgical procedure and have recommended

that the same aseptic standards be used as for a venous cutdown.

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## Nocturnal Enuresis

To the Editor:

In their letter in *The Journal* of December 27, Drs. Matthews and Stephen have asked for clarification of certain points in our paper on nocturnal enuresis (*Canad. Med. Ass. J.*, 101: 324, 1969).

1. The selection of enuretics studied: The enuretics were referred to us in the main by general practitioners, but several were referred by psychiatrists, including Dr. Stephen, one by a urologist and another by a psychologist. Some of the parents and children had psychological problems, but we did not set out to study the incidence of these in normal and enuretic children; we simply wished to find out whether maximum bladder capacities of enuretics were normal or not regardless of the suspected etiology of the enuresis.

2. The word "normal" offends both Dr. Matthews and Dr. Stephen, particularly in relation to enuresis. Our "normal children" were normal in that they "conformed to the common type" (a definition of "normal" given in the Random House Dictionary of the English Language, Random House, Inc., New York, 1966). Our enuretic children were also normal in this respect apart from their enuresis, though it is possible that they differed from enuretics referred primarily to urologists or to psychiatrists, but we think this is unlikely, for evidence is accumulating that enuresis may not be basically a psychiatric problem. This change in concept is best illustrated by the work of Barbour, a psychiatrist, Miller, a urologist, and Oppé, a pediatrician; these three, together with their co-workers,<sup>1</sup> concluded after studying 111 enuretics that "the majority of the children came from stable homes and most of them did not show marked emotional disturbances." Werry,<sup>2</sup> a psychiatrist, has also concluded that

"in the majority of instances neither emotional nor physical (apart from enuresis) disorder is present." Neither Werry nor Barbour could find a common underlying factor. Hallman,<sup>3</sup> Muellner,<sup>4</sup> Starfield<sup>5</sup> and ourselves,<sup>6</sup> all of whom studied maximum bladder capacities in enuretics, have found these to be on the average smaller than those of their non-enuretic counterparts. The most comprehensive study in this area has undoubtedly been that carried out by Starfield, who studied enuretics and siblings in the same families. The small size of the bladder does therefore seem, to date, to be the most constant feature of the disorder.

3. Bladder capacities in enuretic children over the age of 14: We would very much like to study these but have not had an opportunity to do so. It is well known that the incidence of enuresis falls greatly towards puberty.<sup>7</sup> It is also known that enuresis tends to run in families.<sup>8</sup> In taking family histories we have noted that it sometimes happens that a parent who was enuretic in childhood and is no longer so, still has to get up at night to pass urine on one or two occasions, and though he is no longer enuretic, his basic disability would seem to have persisted. The oldest subject with this persisting problem that we have encountered has been a woman of 70. We would like to have the opportunity to study bladder capacities in such people.

4. Frequency may be due to psychological factors. We have had no difficulty in recognizing that daytime frequency can be caused by psychological factors. All we have indicated is that in the children we studied urine was passed more frequently in enuretics than in comparable non-enuretic children, and this we believe was not surprising because the bladder capacities of the enuretics was small. In conversation with Dr. Matthews, he has suggested that frequency may cause small bladder capacities and that frequency may be the underlying defect. This suggestion, while plausible, would appear to us to be putting the cart before the horse and would be analogous to suggesting that it is the wheels going round which make the cart move forward that pushes the horse.

5. We have in our studies tried to

be as factual as possible, and have presented data which can be easily verified or disproved by others, and we are prepared to stand or fall by this. We would very much appreciate it if Drs. Matthews and Stephen could produce their own material indicating that heavy sleeping is commoner in enuretics than in normals, that daytime frequency is "very rare" and that anxiety, which is naturally present in any family where a child has a disability which has no ready explanation, is actually the cause of the enuresis. With regard to anxiety, we note Drs. Matthews and Stephen have suggested in their letter that if anxiety is present in the family and child, the problem should be handled by a psychiatrist. Anxiety in the family and child occur in many other situations, for example when the child has croup, severe pneumonia, appendicitis or osteomyelitis, and yet we would suspect that the general practitioner would be very remiss if he were to refer such problems to psychiatrists. Anxiety in the family and child *per se* is therefore not a valid indication for referring any problem to a psychiatrist. Only if anxiety causes the disease and is remediable by psychotherapy is the psychiatrist the one best trained to handle the disorder. It is possible that anxiety causes enuresis in a significant proportion of enuretics, and if this is the case Drs. Matthews and Stephen, from their extensive experience, should readily be able to prove it. We should add, however, that the conclusions of two psychiatric colleagues, namely Barbour and Werry, who have studied this problem, are that psychiatric factors do not play a great role in the etiology of enuresis.

In conclusion, Dr. Stephen has indicated to me personally that he has taken exception to the suggestions that psychological factors are not important in the etiology of enuresis. That psychological factors are important is up to him to prove in the face of mounting evidence to the contrary, for the only relatively common denominator detected so far in enuresis is a small capacity bladder, and whether this has a psychiatric or organic basis is still to be determined.

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## Therapeutic Abortion

### To the Editor:

I think that our profession should ponder and exchange views on the important and current topic of therapeutic abortion.

I know that certain members of Parliament now admit that the question of abortion was prejudged in their minds. Certainly I think it is true to say that the politicians on the whole gave flimsy and fleeting thought to the full implications of abortion. I hope that as doctors we examine this question fully and patiently before making up our minds.

There is no dearth of literature on the subject; in fact, in the last three years 10 books on abortion have appeared on the Canadian and United States markets.

However, in a short letter I can only touch on some of the reasons why I am opposed to therapeutic abortion.

My main reason is a moral one, but first a word from a purely medical standpoint. It is being increasingly realized that medical indications for therapeutic abortion are few, if any, and that they are mainly psychiatric. But for every psychiatrist who would say that in a certain case the patient would benefit by having an abortion there would be another who would disagree and say that the long-term effect on the patient's mind outweighed any immediate beneficial effect that the procedure might have.

From the sociological point of view it is a fallacy to assume that legalized abortion in a country cuts down the number of "back-street" abortions. Figures are now coming out of a number of countries showing that the opposite is in fact what is happening.

I believe that to perform an abortion on an embryo, fetus or unborn child (call it what you like), which is alive, is immoral for the reason that this is taking a human life.

People who do not agree with this usually say that either the taking of human life does not necessarily